

Claims

- [c1] A bandwidth-adaptive method for synchronizing display data between a source node and a plurality of consumer nodes, the method comprising the steps of:
- (a) identifying, by a source node, a change in local display data;
 - (b) creating, by the source node, at least one data packet representing the change in local display data;
 - (c) receiving, from the source node, metadata information identifying at least one data packet representing the current state of local display data;
 - (d) receiving, from the source node, at least one of the identified data packets;
 - (e) selecting at least one of the received data packets responsive to the received metadata information;
 - (f) transmitting to a consumer node the metadata information; and
 - (g) transmitting to the consumer node the selected at least one data packet.
- [c2] The method of claim 1 further comprising the step of, before step (e), receiving a request from a consumer node for the current state of the source node local display data.

play data.

- [c3] The method of claim 2 further comprising the step of repeating steps (a) through (d) until a request is received from a consumer node for the current state of the changing data set.
- [c4] The method of claim 3 wherein step (e) comprises the steps of:
 - (e-a) selecting one of the received metadata information; and
 - (e-b) selecting at least one of the received data packets identified by the selected metadata information.
- [c5] The method of claim 1 wherein step (e) comprises selecting a plurality of the received data packets responsive to the received metadata information.
- [c6] The method of claim 5 wherein step (f) comprises transmitting to a consumer node each of the selected plurality of data packets.
- [c7] The method of claims 1 wherein step (d) comprises receiving from the source node at least one of the identified data packets in encrypted form.
- [c8] The method of claim 1 further comprising the step of storing the received metadata information in a memory

device.

- [c9] The method of claim 1 further comprising the step of storing the received at least one data packet in a memory device.
- [c10] The method of claim 9 wherein step (e) comprises:
 - (e-a) selecting at least one of the received data packets responsive to the received metadata information; and
 - (e-b) selecting at least one of the stored data packets responsive to the received metadata information.
- [c11] The method of claim 10 where step (g) comprises:
 - (g-a) transmitting to the consumer node the selected at least one of the received data packets; and
 - (g-b) transmitting to the consumer node the selected at least one of the stored data packets.
- [c12] The method of claim 1 further comprising the step of storing, in a memory element, information identifying the at least one data packet transmitted to the consumer node.
- [c13] The method of claim 12 further comprising the step of selecting at least one of the received data packets responsive to the received metadata information and the stored information identifying the at least one data packet transmitted to the consumer node.

- [c14] A bandwidth-adaptive system synchronizing display data between a consumer node and a source node, the system comprising:
- a source node identifying a change in local display data, creating at least one data packet representing the change, creating at least one metadata packet identifying the at least one data packet representing the change in local display data and transmitting the at least one metadata packet and the at least one of the identified data packets; and
 - a communications service in communication with the source node, the communications service selecting one of the at least one metadata packet and the at least one data packet for transmission to a first consumer node.
- [c15] The system of claim 14 further comprising a first consumer node, wherein the first consumer node requests the current state of the source node local display data from the communications service.
- [c16] The system of claim 15 wherein the communication service selects one of the at least one metadata packet and the at least one data packet in response to the request made by the first consumer node.
- [c17] The system of claim 15 further comprising a second

consumer node, wherein the second consumer node requests the current state of the source node local display data from the communications service.

- [c18] The system of claim 17 wherein the source node transmits a plurality of metadata packets, each of the plurality of metadata packets representing one state of the source node local display data.
- [c19] The system of claim 18 wherein the communication service selects a first metadata packet to transmit to the first consumer node and a second metadata packet to transmit to the second consumer node.
- [c20] The system of claim 14 wherein the consumer service further comprises a memory element.
- [c21] The system of claim 20 wherein the memory element is a persistent storage device.
- [c22] The system of claim 20 wherein the consumer service stores the received at least one metadata packet in the memory element.
- [c23] The system of claim 20 wherein the consumer service stores the received at least one data packet in the memory element.
- [c24] The system of claim 20 wherein the consumer service

stores in the memory element information regarding transmission of packets to a consumer node.

[c25] The system of claim 14 wherein the source node encrypts the at least one data packet before transmission to the consumer node.

[c26] A bandwidth-adaptive method for synchronizing display data between a source node and a plurality of consumer nodes, the method comprising the steps of:

- (a) identifying, by a source node, a first change in local display data;
- (b) receiving, from the source node, first metadata information identifying a first at least one data packet representing a first state of local display data;
- (c) identifying, by a source node, a second change in local display data;
- (d) receiving, from the source node, second metadata information identifying a second at least one data packet representing a second state of local display data;
- (e) generating third metadata information representing the difference between the first at least one identified data packet and the second at least one identified data packet, the third metadata information identifying a third at least one data packet;
- (f) transmitting to a consumer node the third metadata information; and

(g) transmitting to the consumer node the third at least one data packet.